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ABSTRACT

The effects of an individualized instruction workshop and its related follow-up program on the attitudes and behavior of selected elementary teachers and their students were discussed in this report. Participants were teachers in a four-day workshop on individualizing instruction. The workshop included training in classroom procedures, managing physical facilities, utilizing human resources, and developing techniques for encouraging students to be self-managing. Evaluation methods, questionnaires and observation indicated a favorable change in teacher behavior. The effects of the inservice program for teachers indicated little or no affect on student attitude and independent work habits. (Appendixes of related program material and a 21-item bibliography are included.) (MJM)

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THE EFFECTS OF AN INDIVIDUALIZED INSTRUCTION WORKSHOP AND ITS RELATED FOLLOW-UP PROGRAM ON THE ATTITUDES AND BEHAVIOR OF SELECTED ELEMENTARY TEACHERS AND THEIR STUDENTS:

FINAL REPORT

The research reported herein was performed pursuant to a Contract No. OEC-9-72-0006 (057) with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinion stated do not, therefore, necessarily represent official Office of Education position or policy.

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APPENDICES

REFERENCES

1. Problem and Objectives

The interest in individualizing instruction in the classroom has increased rapidly in the last ten years. This increase has resulted in discussions of the role of teachers in an individualized classroom and, consequently, the necessary changes in the preparation of classroom teachers. Discussion of the preparation for teachers in individualized instruction by Swenson (1962), Gage (1968), and Steen (1969) stressed the importance of training teachers to: recognize individual differences; encourage student participation in planning for the learning process; provide feedback to students based on evaluative procedures; train students to make decisions on the basis of feedback; and employ techniques for using rewards to encourage appropriate learning behaviors. Training programs for future teachers in university schools of education have been developed at the University of Pittsburgh (Lindvall, 1966) and West Virginia University (McAvoy, 1970). These training programs are quite extensive and include basic professional courses in child psychology and educational psychology with extensive clinical training (student observation, assistant teaching, and student teaching). These programs require the future teachers to use the concepts from the professional courses to develop the skills needed in an individualized classroom. Southworth (1969) suggested that a model program would be based on: (1) individualizing instruction for the future teacher; (2) utilizing the procedure of working with the learner in planning, executing and evaluating the learning experiences; and (3) specifying a set of goals and expectations and stages required for reaching these goals.

The need for more research in the preparation of teachers in individualized education was suggested by Flanagan (1968). This research has

been slow in being developed. Research reports teacher behavior in individualized education (Steen and Lipe, 1970; Resnick, 1971; Reynolds, 1971) and the analysis of the teacher's role in individualized instruction (Reynolds and Millmore, 1971) should furnish us with further guidelines for specifying the objectives in teacher training for individualized instruction.

Although the preparation of teachers for individualized instruction is being given increasing emphasis in pre-service education programs, using programs similar to the ones at the University of Pittsburgh and West Virginia University, the majority of teachers in schools who are trying to implement individualized instruction in the classroom will be teachers who have received their pre-service training prior to the inception of these programs. It will, therefore, be necessary to design in-service programs which will retrain experienced teachers in the skills they already have used in group-centered classrooms to make the skills more effective for use in individualized classrooms. Very little research has been done to measure the effectiveness of in-service programs. One exception would be the Minicourse studies of the Far West Laboratory for Educational Research and Development (Borg et al., 1969, 1970). A second exception was done on the effects of in-service programs designed specifically for teaching the skills in individualized instruction in classrooms by the California teacher Development Project for Systems of Individualized Instruction (ESEA Title III Project No. 68-05331). The research assessed the classroom procedures of teachers who participated in a one-week workshop in individualized instruction in the summer of 1970. The workshop was comprised of eleven components (or learning modules) related to individualizing instruction which were to be used in an individualized setting by

the teachers in the workshop. Participants in the workshop were from six San Francisco Bay Area school districts who had formerly participated in the development of PLAN (A Program for Learning in Accordance with Needs), a product of American Institutes of Research and Westinghouse Learning Corporation. Subsequent observation of classroom procedures took place during 1970-71. Measures were taken of the extent of individualization in the classrooms of the workshop participants and of a similar control group of teachers. Measures of knowledge of and attitude toward individualized instruction taken in a pre-test and post-test administered immediately before and after the workshop showed very significant positive changes in knowledge and attitude of the workshop teachers ($p < .001$, $df = 60$) (Carmichael and Kallenbach, 1971a). Observations in the classrooms of the experimental (workshop) and control groups of teachers were made in the spring semester prior to the workshop and once each in the fall and spring following the workshop. Independent, trained observers made these observations of which there were nine each for each teacher observed. Both groups revealed high instances of group-paced teaching in the fall and spring after the workshop. The experimental group began to reveal major changes in teaching toward individualization in the fall observation and very significant, positive (i.e., towards individualization) changes toward individualization by the second post-workshop observation (Carmichael and Kallenbach, 1971b).

The participants in the project attended a workshop in January, 1972, similar to the 1970 California Teacher Development Project Workshop. The workshop provided training for teachers in these twelve components:

1. What is Individualized Instruction?
2. What are Some Problems in Individualizing Instruction?
3. What Test Evidence is There to Support or Refute Individualized Instruction?
4. How Do You Write Behavioral Objectives for Your Students?
5. How Do You Diagnose Learning Needs of a Student?
6. How Do You Prescribe Student Behavior in an Individualized Program?
7. How Do You Prescribe Curriculum for a Student in an Individualized Program?
8. How Do You Use Contracts in Individualizing Instruction?
9. How Do You Apply Physical Resources in Individualized Instruction?
10. How Do You Apply Human Resources in Individualized Instruction?
11. How Do You Evaluate Record Student Progress in Individualized Instruction?
12. How do You Apply Psychological Principles to Help Students Become Self-Directed Learners?

The questions to be investigated were to determine if workshops plus an extension of training in the form of a feedback system is an effective system of in-service training of teachers in individualized instruction. Their questions were:

1. Does a teacher's participation in a workshop in individualized instruction increase the positive attitude of the teacher toward individualization?

2. Does individualized instruction make a difference in a student's attitude toward himself and towards learning?

3. Will a program of continued information and feedback following a workshop designed to teach teachers how to individualize their classroom increase the individualized activities in the classroom?

4. Will a system of training which includes a workshop and training materials sent through the mails help promote a classroom which will enable students to increase their independent work habits?

Related Research

In addition to the study conducted by the 1970-71 California Teacher Development Project which indicated a positive increase in the attitudes of participants in a workshop in individualized instruction (Carmichael

and Kallenbach, 1971a), one other study on attitudes related to a change in instructional procedures was found in the literature search. Askov (1971) reported that attitudes of teachers do change as their classroom procedures for instruction change. This study was based on fall and spring responses to a semantic differential response instrument in individualized classrooms and non-individualized classes in reading. Additional information about the change in attitudes of teachers when involved in individualization should be sought.

Research in PLAN schools and IPI (Individually Prescribed Instruction) schools indicates that students participating in either of these two systems of individualized instruction did not significantly increase their academic achievement on standardized tests as compared with non-individualized classroom students. A review of the literature indicates that this is the usual result achieved by comparative studies. Studies that attempt to relate an increase in positive statements of students about themselves and learning were not found in the current literature.

The basic question of the relative effectiveness of workshops and the addition of an in-service feedback system has been given some attention in recent research. Whitmore (1971) described the results of research conducted with participants in a teacher training workshop in the management of classroom behavior which indicated that teachers acquired contingency management techniques rapidly as the result of the workshop. Another study completed in Wilmette, Illinois (1969) trained new teachers in a workshop and provided feedback during the following year by means of a team of professional educators, including the principal, helping teachers,

and an advisor-consultant who observed in the teacher's classroom and held discussions with the teacher to help him in acquiring the new skills. A study reported by Kosier (1971) compared the success of individual consultant via television feedback with consultant via observational data feedback in the training for management of classroom behavior. The results indicated that the television feedback accelerated the rate of improvement in task orientation. On the other hand, the observational data feedback facilitated improvement over a longer period of time. Further research on feedback systems for in-service training is needed to give school systems and schools of education directions for their planning of in-service training programs.

Objectives of the Workshop

1. Teachers participating in the workshop will be able to:

    1.1 Write objectives in behavioral terms
    1.2 Write appropriate learning contracts
    1.3 Write evaluation items to evaluate achievement of the objectives specified for learning

2. Teachers participating in the workshop will be able to exhibit these behaviors in the classroom:

    2.1 Organize effective learning centers by arranging classroom facilities and organizing materials for efficient retrieval and return
    2.2 Prescribe curriculum for students on an individualized basis through diagnostic procedures
    2.3 Diagnose the cause of learning problems
    2.4 Assess the extent of individualization in the classroom

3. Teachers participating in the workshop will increase the number of positive statements made to students

4. Teachers participating in the workshop will demonstrate an increased knowledge about individualized instruction

5. Teachers participating in the workshop will increase in positive attitude toward individualized instruction

6. Students in the classrooms of the workshop participants will increase in the number of positive responses about school and learning

7. Students in the classrooms of the workshop participants will exhibit more independent behaviors

Hypotheses

1. Teachers who participated in the January Individualized Instruction Workshop will achieve the teacher objectives one through five during the months following the workshop.

2. Students whose teachers participated in the January workshop will achieve student objectives six and seven during the following semester.

3. Teachers who participated in the January workshop plus the feedback system will achieve teachers' objectives 2.2, 2.4 and 3 during the following semester.

2. Description of Activities

Subjects. Participants were teachers in a four-day workshop on individualizing instruction.

Treatments. The experimental group attended an individualized instruction workshop. The workshop itself was individualized. The materials studied and discussed included information on what individualization is, what problems are encountered in individualizing in the classroom, and data to support the implementation of individualized classrooms. It also included training in classroom procedures, managing physical facilities, utilizing human resources, and developing techniques for encouraging students to be self-managing. The workshop was a simulation of an individualized classroom with experienced teachers and consultants to act as tutors and discussion leaders.

The Treatment (or Experimental) Group participated in a feedback system during spring semester of 1972. They received informational materials each month reviewing the principles of individualized instruction related to these objectives:

Objective 2: Teachers participating in the workshop will be able to exhibit these behaviors in the classroom:

...

2.2 Prescribe curriculum for students on an individualized basis through diagnostic techniques

2.4 Assess the extent of individualization in the classroom

The original plan for feedback materials included seven mailings. Because the study had to be condensed into a three-months period, only three mailings were made. They were sent under these topic headings:

March 15: (1) Individualizing objectives and activity assignment by using students choice

(2) A check-sheet for the teacher to use in setting goals for himself in initiating individualizing activities

April 15: (1) Organizing a record keeping system

(2) "Using Positive Statements in a Technique for Changing Behavior?

May 25: Meeting the tutoring needs of students (See Appendix A)

Teachers in the Treatment (Experimental) Group were asked to send these materials to the consultants:

a. A list of objectives for which individualized materials were prepared.

b. A sample contract being used in the classroom.

c. Reactions to questions about the use of a record keeping system which were included in the second mailing.

3. Evaluative Procedures

Hypothesis 1: This hypothesis was tested by the use of the observation instrument. Specifically, this objective was measured by the following technique:

1. The extent of individualization was assessed by trained observers using the California Teacher Development Project Teacher Observation Scale. (Two observations: March and May). (Appendix B)

Hypothesis 2: The hypothesis was tested as follows:

1. The students' use of positive responses about school was measured by the Student Attitude Inventory. (Two administrations: March and May).
2. The students' independent behavior was measured by a Student Independent Work Habits Questionnaire, called Student Questionnaire.

Hypothesis 3: Separate statistical analyses were used to test Hypothesis 3. Data were derived from the same observation scales used to test Hypothesis 1.

4. Statistical Analyses

The Mann-Whitney U test and the χ^2 test were used to test the various hypotheses.

5. Procedures

The original design of the study was intended to obtain data on several variables over a period of ten months. Teacher knowledge of, attitude toward and behavior in individualized instruction were to have been assessed,

both pre- and post-treatment, and compared with similar data from a comparable group of teachers. The same was to have been true of data obtained on student attitude, independent work habits, and academic achievement. Due to late commencement of the project (a result of late funding), the original design and all pre-treatment teacher data collected were scrapped and the project time was compressed to five months. Data were collected on the following:

Teachers

Pre-Treatment	Post-Treatment
1. Teacher attitude toward individualized instruction	1. Teacher attitude toward individualized instruction
2. Extent of individualized instruction in teacher's classroom	2. Extent of individualized instruction in teacher's classroom

Students

Pre-Treatment	Post-Treatment
1. Attitude toward individualized instruction	1. Attitude toward individualized instruction
2. Independent work habits	2. Independent work habits

The treatment consisted of a series of activities to be carried out by the teacher as reinforcement for what he or she had learned in the Individualizing Instruction and Learning Workshop during January, 1972. The activity materials are described in Appendix A. The treatment was preceded by the four teacher and student pre-tests. Post-tests on each of the four teacher and student variables followed administration of the treatment of the project. A major concern was whether any change in behavior

and attitude could occur in the shortened span of the revised study, viz., a period varying from two to four months depending upon the variable being studied.

The teacher observation instrument, Teacher Observation Scale or TOS, is shown and described in Appendix B. Basically, it is a guide used by trained observers to determine the nature and extent of teacher behavior in individualizing instruction and, specifically, includes Level of Individualization, Content Area Being Taught, and Size of Group Being Taught. The observers were, otherwise, independent of the study.

The Teacher Attitude Inventory (Appendix C) is a measure of teacher attitude toward individualized instruction activities. The inventory was developed by EPIC Diversified Systems, Inc., for the California Teacher Development Project, an ESEA Title III Project.

The Student Attitude Inventory (Appendix D) was similarly developed by EPIC Diversified Systems, Inc., for the California Teacher Development Project. It is intended as a measure of attitude toward school as well as toward individualized instruction.

The Independent Work Habits Inventory was developed for this study by one of the co-authors and is shown in Appendix E. It is designed to obtain student responses indicative of their level of independence from teacher direction during class activities.

The pre-tests were administered in February and March, 1972, and the post-tests during May, 1972. Too few returns of the Teacher Attitude Inventory post-test were received to include the data in the Final Report.

6. Results

Twenty-one teachers out of the fifty-eight participating in the Individualizing Instruction and Learning Workshop volunteered for the learning (the treatment) and evaluation activities of the study. The workshop was a regularly scheduled one of the then San Jose State College Extension Service.

Trained observers, independent of the study, visited the teachers' classrooms during March and May, 1972. One teacher withdrew from the study just before observations were to have begun. The individualized instruction activity recommendations were mailed to each teacher at approximately two week intervals as soon as the pre-treatment observations were completed. Following completion of the treatment activities, post-treatment observations were conducted during May, 1972. In a preliminary analysis of the observations it was determined that eighteen sets of pre- and post-observations were valid for purposes of the study. The results of the pre- and post-treatment observations were given in Tables 1 to 5 below.

Table 1. Frequency and Percentage of Levels of Teachers' Use of Individualized Instruction Techniques During March and May, 1972

Category	March (N=18) Frequency	March (N=18) Percent	May (N=18) Frequency	May (N=18) Percent	U
1. Group-paced Instruction	393	14.9	534	24.4	133
2. Pacing only varied	842	32.0	453	20.7	111
3. Materials only varied	586	22.3	132	6.0	116
4. Objectives varied only	117	5.4	43	2.0	145
5. Pacing & Materials varied	451	17.2	164	7.5	124
6. Unable to judge (confusion)	120	4.6	0	0.0	144
7. Pacing & Objectives varied	0	0.0	111	5.0	153
8. Materials & Objectives varied	0	0.0	20	0.9	153
9. Individualized Instruction	120	4.6	733	33.5	102
	2,629	100.0	2,190	100.0	

U is significant (.05 level, two-tailed test) at $U \leq 99$

The Mann-Whitney U Test was the statistic used to analyze the Teacher Observation Scale data. For the data in Table 1, U must equal or be smaller than 99 to be significant at the .05 level (two-tailed test). As can be observed from the last column of Table 1, no frequency or percentage reached this level of significance in any category although Category 9, Individualized Instruction, almost achieved significance at this level using the Mann-Whitney U Test. The frequencies were converted to percentages in

the tables to equalize the variations in sample size between March and May. As can be observed, there is a major shift in Category 9 between the March and May samples as well as a slight gain in Group-paced Instruction. The change in size came at the expense of the Partially Individualized Instruction categories (Categories 2 to 8 excepting 6). A χ^2 was obtained to test the significance of change between the two samples. Table 2 gives this information. The central categories were regrouped to eliminate cell frequencies of less than five per cent.

Table 2. Calculation of χ^2 from Two Samples of Group-Paced, Partially Individualized and All Individualized Instruction.

Instructional Category	Samples: March (N=18)	Samples: May (N=18)	Total
Group-paced Instruction	14.9	24.4	39.3
Partially Individualized	80.5	42.1	122.6
Individualized Instruction	4.6	33.5	38.1
Total	100.0	100.0	200.0

	O	E	O-E	$O-E^2$	$\frac{(O-E)^2}{E}$
	14.9	19.6	- 4.7	22.09	11.20
	24.4	19.4	5.0	25.00	1.29
	80.5	61.0	19.5	380.25	6.23
	42.1	61.0	-18.9	357.21	5.86
	4.6	19.4	-14.8	219.04	11.29
	33.5	19.6	13.9	193.21	9.86
Total	200.0	200.0			$\chi^2 = 45.73$**

**Significant at $p < .01$, df=2

The χ^2 obtained was very significant and we can reject the null hypothesis that there would be no significant differences in the percentage of individualized instruction between the March and May samples. The samples are different and there was a significant increase of individualized instruction following the treatment of the study.

The next variable analyzed in the study was the variation among teachers as to size of group with which working as observed during the March and May sampling periods. Table 3 shows that there was a slight decrease of teachers working on a one-to-one basis and in small groups with students, an increase in large group (11 or more students) and a significant increase in observation of Teacher Working at Desk. This last finding had not been predicted by the study and the shifts from one-to-one and small group activities to increased large group activities goes counter to the predictions of the study even though the changes are found to be nonsignificant by the Mann-Whitney U Test analysis.

Table 3. Frequency and Percentage of Size of Group Categories During March and May Observations.

Size of Group Category	March (N=18) Frequency	March (N=18) Percentage	May (N=18) Frequency	May (N=18) Percentage	U
1. Teacher Working with One student	1,360	51.8	974	44.6	129
2. Working with from 2-3 students	678	25.8	180	8.2	115
3. Working with from 4-6 students	119	4.5	87	4.0	156
4. Working with from 7-10 students	82	3.1	52	2.4	145
5. Working with 11 or more students	339	12.9	481	22.0	122
6. Teacher working at desk	43	1.6	411	18.8	99*
7. Confusion (unable to assign)	6	0.2	0	0.0	135
Total	2,627		2,185		

*Significant at $\rho \leq .05$, two-tailed test

The pattern seems to be from somewhat fewer one-to-one and small group sessions to somewhat more large-group sessions. This may be understandable at the end of the school year, e.g., more record keeping required, but the significant increase in the Teacher Working at Desk category requires further study. Could it be that the increasing individualization in the classroom permits the teacher to work at his or her desk? This really doesn't seem to be the case inasmuch as one of the biggest losses is from the very small group sessions that were observed in March. Is working at his or her desk a more or less desirable activity on the part of teachers in these programs? The study provides no answers here. Authorities on individualizing instruction, however, recommend that teachers work directly with pupils and avoid desk routines.

Again, a χ^2 test was applied to test the significance of the changes between the March and May samples of the study. Observation of the data would indicate that significant differences probably do exist, but the test must be applied. The results of the analysis are given in Table 4.

Table 4. Calculation of χ^2 from Two Samples of Teachers Working on One-to-One, Small Group, Large Group and Teacher Working at Desk Bases.

Size of Group Category	Samples		Total
	March (N=18)	May (N=18)	
Teacher Working with One Student	51.8	44.6	96.4
Teacher Working with Small Groups	33.7	14.6	48.3
Teacher Working with Large Groups	12.9	22.0	34.9
Teacher Working at Desk	1.6	18.8	20.4
Total	100.0	100.0	200.0

O	E	O-E	$(O-E)^2$	$\frac{(O-E)^2}{E}$
51.8	48.2	3.6	12.96	.27
44.6	48.2	-3.6	12.96	.27
33.7	24.1	9.6	92.16	3.84
14.6	24.1	-9.5	90.25	3.74
12.9	17.5	-4.6	21.16	1.20
22.0	17.5	4.6	20.25	1.10
1.6	10.2	-8.6	73.96	7.25
18.8	10.2	8.6	73.96	7.25
				$\chi^2 = 24.92^{**}$

**Significant at $\rho < .01$, df=3

The shift in size of groups with which the teacher is working is very significant and opposite in direction from the hypotheses of the study. The increase in the Teacher Working at Desk category, as indicated above, was the major unexpected outcome.

The third variable assessed by the Teacher Observation Scale, Content Area Taught, did not change significantly between the two observation periods as measured by the significance levels of the Mann-Whitney U Test. Inspection of the two percentage columns for March and May in Table 5 reveals only slight shifts in either direction between the two time periods.

Table 5. Frequency and Percentage of Content Area Taught in Two Samples of Teacher Behavior During March and May, 1972.

Content Area Taught	March (N=18) Frequency	March (N=18) Percentage	May (N=18) Frequency	May (N=18) Percentage	U
1. Reading, L.A., Spelling	1,361	50.2	938	42.9	157
2. Mathematics	696	25.7	652	29.8	155
3. Science	329	12.1	235	10.8	153
4. Social Studies	206	7.6	240	11.0	161
5. Other	120	4.4	120	5.5	162
6. Reading Math, Science	0	0.0	0	0.0	0
7. Reading and Math	0	0.0	0	0.0	0
8. Reading and Social Studies	0	0.0	0	0.0	0
9. Confusion	0	0.0	0	0.0	0
Total	2,712	100.0	2,185	100.0	

It is not surprising that there were no significant changes in content area taught between the two sampling periods. It is difficult to include additional areas as individualization is underway in any given classroom. The null hypothesis for this objective is accepted.

The two areas of student attitude and behavior sampled concerned were attitude toward instruction and independent work habits. Both the Student Attitude Inventory and the Student Independent Work Habits Inventory were scored by marking the number right and the number of items omitted. Median scores were obtained for each inventory and ranks of these were obtained in order to determine Mann-Whitney U's for each set of March and May samplings.

Table 6. Median Scores and Rank Order, by Classrooms, of Two Administrations of the EPIC Student Attitude Inventory.

March		May		U
Median	Rank	Median	Rank	
26.0	3	25.0	1	
32.0	5	25.8	2	
32.5	6	28.75	4	
35.75	7	36.17	9.5	
36.0	8	37.0	11.5	
36.17	9.5	37.0	11.5	53.5
38.25	14.5	37.25	13	
40.0	16	38.25	14.5	
42.13	19	40.8	17	
46.0	20.5	41.0	18	
		46.0	20.5	

U, to be significant at $p \leq .05$, must equal or be less than 30 (one-tailed test).

As can be observed in Table 6, the distribution of median scores between the two sampling periods did not exceed chance expectancy levels. The hypothesis for this variable was not fulfilled.

In the area of student independent work habits, the same procedures were followed, i.e., median scores were obtained and rank orders were obtained for each of these for both the March and May sampling periods. Table 7 gives the outcomes of these data analyses.

Table 7. Median Scores and Rank Order, by Classrooms, of Two Administrations of the Student Independent Work Habits Inventory.

March		May		
Median	Rank	Median	Rank	U
5.17	2	4.61	1	
5.70	4	5.67	3	
6.10	6	6.00	5	
6.80	7.5	6.80	7.5	
8.50	11	7.33	9	50.5
10.50	14	8.42	10	
10.75	15	8.70	12	
11.00	16	9.75	13	
12.17	19	11.10	17	
12.56	20	12.79	21	

U, to be significant, at .05 level, must equal or be less than 31 (one-tailed test).

Again, student independent work habits did not exceed chance expectancy in variations between the two sampling periods and the hypothesis for this objective was not fulfilled.

7. Discussion of Results

The only hypothesis to be fulfilled in the direction predicted was that of increase in teacher's use of individualized instruction. Contrary to prediction was the significantly greater use of larger groups by the teacher in the Size of Group category and the unexpected occurrence of the significant increase in Teacher Working at Desk category. These are key areas of interest for researchers, viz., can we influence changes in teacher behavior by administration of a series of workshop follow-up activities designed to assist teachers to achieve higher levels of individualized instruction? A limitation of the study is that a comparable group of non-treatment workshop teachers was not also observed during the same time periods. It could be that teachers in general move from group-paced to increasingly individualized instruction during the school year regardless of the activities presented to them during that period. This assumption is not supported by the findings of the California Teacher Development Project, an ESEA Title III Project, in which the same evaluation instrument, Teacher Observation Scale, was used. In that study, non-treatment teachers did not change significantly in the direction of increased use of individualized instruction whereas the treatment group changed very significantly after the treatment activity.[1] There is some uncertainty about the statistical tests applied, e.g., the U Test was not nearly as conclusive as was the χ^2 Test. This may be due to the somewhat different approaches used, viz., between-category tests were applied in the Mann-Whitney U Tests and variations-among-categories was tested--with fewer and regrouped categories--on the χ^2 Test.

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[1]The California Teacher Development Project, Final Report. Fremont (CA) Unified School District: The Project, 1971.

It was not expected that Content Areas would vary much between samplings and this proved to be the case. Teachers can hardly be expected to increase individualization during such a short time period.

Failure to achieve any significant changes in student attitude toward individualized instruction or in independent work habits is disappointing but not unexpected. Similar results were obtained in IPI, PLAN and California Teacher Development Project studies, viz., significant changes were obtained in teacher but not student attitude, knowledge and behavior.[2]

8. Conclusions and Recommendations

There is evidence from this study that some teachers do change in the extent of their individualizing of instruction behavior following participation in an in-service program designed to increase the extent of such behavior. Evidence from another study, the California Teacher Development Project, indicates that teachers in a treatment group significantly individualize their instructional programs following treatment (an individualized instruction workshop) and that non-treatment teachers (those who did not participate) do not. The latter group, in fact, hardly changed their group-paced instructional program approach at all over a period of one year of study. A limitation of the current study is that only volunteers from a workshop on individualizing instruction were used. It is widely accepted, however, that innovative programs rarely, if ever, can be forced upon unwilling participants and, therefore, the present study had no other choice than to use volunteer teachers.

The effect of the in-service program for teachers had little or no effects on student attitude and independent work habits judging from the results of this study. Wider and more closely monitored samplings might

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[2] Ibid.

have obtained different data but the results are consistent with the other studies cited above. Developers of the Wisconsin Center for Research and Development Project in Individually Guided Education report that from three to four years are required before lasting and stable levels of student learning are achieved in their programs.[3]

The result of the study are promising enough to recommend that similar studies be conducted to test the effect of workshop follow-up programs on other groups of teachers. Longitudinal studies may be necessary to determine change in student attitude, knowledge and behavior in individualized and non-individualized programs. The cost effectiveness of the follow-up activities of this study is very high. Only test administration, clerical and mailing costs could be charged directly to the study beyond the usual classroom expenditures. Other in-service programs might profit by conducting similar follow-up studies to determine the extent of changes in teacher behavior following participation in the given workshop.

9. Relevance of the Findings

The potential implications of the results of this research proposal are important to the further development of individualized instruction in the nation's classrooms. Most of the studies being reported are developmental in nature. Much more needs to be done in the research into the roles of teachers and the appropriate training of teachers in individualizing their classrooms. The research that has been done on the results of changing classroom procedures to individualization has resulted in no advantage in the increase in academic progress of students. This proposal

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[3]The University of Wisconsin Research and Development Center for Cognitive Learning. Report of Evaluation Studies, 1968-1970. Madison: The Center, 1970.

seeks to find out whether there are changes in the affective areas of teacher attitudes toward individualization, students' attitudes toward school and self and student independent work habits. Results may be influential in encouraging or discouraging further efforts toward individualization of instruction in pre-service and in-service teacher education programs.

The in-service training procedures for teachers continue to pose a problem for educators in public schools. Carmichael and Kallenbach (1971a) indicated that the impact of a workshop can change behavior of the teacher in the classroom. This study is an attempt to see if a relatively inexpensive and easily administered feedback system following a workshop can make an additional significant impact. If this proves to be true, administrators can add this type of workshop and feedback system to their regular in-service program with the expectation for more effective classrooms with relatively little additional cost to their budgets.

More research needs to be done to compare the effect of a consultant-in-person giving the information to the teacher in a feedback system similar to the one described in this proposal. The relatively low cost of the two in-service approaches makes such a study imperative. The vast changes being made in school curricula and methods challenge every teacher to learn the new techniques through some in-service arrangement. The most effective, feasible and inexpensive arrangement needs to be found to help school districts provide for this training for their teachers.

Dissemination of the results of the proposed research will be accomplished in two principal ways. Publication of the results and the potential use of the in-service materials and instruments developed will

be offered to the California Teacher Development Project to be included in their in-service workshop programs.

Reports on the findings yielded by the project will be made at professional meetings including meetings of the American Educational Research Association. In addition, manuscripts will be offered to professional journals.

APPENDICES

APPENDIX A

THE PRINTED FOLLOW-UP PROGRAM MATERIALS

SAN JOSÉ STATE COLLEGE

SCHOOL OF EDUCATION
Department of Elementary Education

February 22, 1972

This letter is a follow-up to our Individualized Instruction Workshop which you recently attended at San Jose State College. We are trying to find out how successful the workshop can be over the next few months after the workshop is held. It is difficult to know whether or not a workshop has been successful. Your enthusiasm in the workshop is one good indicator but the best indicator would be the extent of changes you make in your classroom between now and the end of the school year. We need your help!

To be specific, we would like to have a project observer come into your classroom in late February or early March to help us determine where you are now in individualizing your instructional program. The observer would be looking for use of contracts or learning centers, for example, or for instances of individualizing objectives and activities for your students. We wouldn't expect to see much individualizing going on at this time, of course. Later, when the observer comes again, in May, we would be able to see whether the workshop had had some impact on your teaching or not.

Another way to see how much individualization is under way is to check with students as to whether they work in total groups or in independent projects whenever they are ready for them. We would like to give a questionnaire that asks them how they make decisions at home and school in order to determine how independently they can work. Another short questionnaire we would like to give asks students questions from which we can determine how they feel about learning and school. These responses should help us learn more about the impact of our workshop and assist us in improving its value.

Any time an observer comes to your room he or she will call to make an appointment. We hope you will be able to help us in this important study for the U. S. Office of Education. If you are willing to help in the study, please sign the attached form and return it to us in the envelope enclosed with this letter.

Thank you for your valuable assistance.

Very sincerely,

Helen Dell

Enclosures

Helen Dell, Project Consultant

Warren Kallenbach

Warren Kallenbach, Project Director

125 SOUTH SEVENTH STREET, SAN JOSE, CALIFORNIA 95114 (408) 294-6414

SAN JOSÉ STATE COLLEGE
125 South Seventh Street, San José, California 95114 (408) 294-6414

SCHOOL OF EDUCATION
Department of Elementary Education

March 7, 1972

We appreciated your cooperation in allowing observers to come into your classrooms. Before they return in May we will be sending you more information about techniques for individualising your classroom. There will be four packets of information. The first should arrive by March 20th, the second by April 10th, the third by April 17th and the fourth by April 24th. In each packet there will be a few pages of information which will give you ideas for making your individualized program more effective. We will also ask you to send some of your materials to us for critiquing. This will be like the critiquing you have when you take a practicum at the college. We will return it to you with suggestions such as you would receive if we were to sit down with you and go over the materials together. We hope this will be helpful to you as you develop your materials and classroom techniques for individualizing. Thank you for your continued cooperation.

Sincerely,

Warren Kallenbach

Dr. Helen D. Dell

Dr. Warren K. Kallenbach
Dr. Helen D. Dell

SAN JOSÉ STATE COLLEGE
125 South Seventh Street, San José, California 95114 (408) 294-6414

SCHOOL OF EDUCATION
Department of Elementary Education

March 13, 1972

Last week you received a letter from us which stated that we wanted to help you individualize your classroom by sending you additional information about the assignment to students of objectives and activities, the arrangement of a classroom, and organizing time for individualized study and testing which will increase the effectiveness of the learning environment. Included is a chart listing learning activities which will provide for a variety of student learning characteristics. You can use it with each student to help him choose activities best suited for his learning characteristics.

The second chart included in the packet is designed to help you set goals for yourself in individualizing your classroom in much the same way that you will want to ask your students to set goals. At a later date we would like to discuss this chart with you.

Enclosed is an addressed and stamped envelope in which you can send us a sample of the contracts you have written. In this way, we can help you by giving you additional information.

Sincerely,

Warren Kallenbach

Dr. Warren K. Kallenbach

Helen D. Dell

Dr. Helen D. Dell

Enclosure

FEEDBACK INFORMATION

Individualizing choice of objectives

In our Individualized Instruction Workshop you learned about writing objectives, using contracts and diagnosing the needs of students. We want to provide this additional information so you may use it in your teaching.

Each student should be working on an objective that is appropriate for his needs. If you have written several contracts by now you will want to have your students start working on them. It is good practice to make sure each student takes the pre-test for any contract he is beginning. Some of your students may pass these pre-tests.

Do not ask a student to work on a contract when he can pass the pre-test. For each student who has passed the pre-test help him find the appropriate objective to work on by taking these steps:

1. Check him out orally or by pre-test on the objectives in each of the other prepared contracts. If the student cannot pass the pre-test this may be an appropriate contract for him.

2. For each student who can achieve the objectives in all of your prepared contracts, orally check to see what objectives may be appropriate for him.

3. Write the appropriate objectives and contract for each student who needs one. These, of course, will be included in your collection of contracts for all students.

You may have a student who is lacking a large number of skills which are necessary to have prior to working on any of the objectives for which you have contracts. When you have found the skills the student is lacking, write contracts based on objectives written for each of skills. If you help each student achieve these objectives in a sequence you have developed, he should eventually be able to achieve the objectives in the contracts he originally attempted. The point here is not to expect all students to be able to work on the first set of contracts you write. You may be able to use contracts someone else in your school has written or you may have to write more contracts, but it is important to find the objectives which best fit each student's needs and write contracts for them. If you do this you will find your students working on a great variety of contracts and achieving the objectives at a great variety of paces.

Individualizing choice of activities

The workshop materials also encouraged you to provide a variety of materials and types of materials in your contracts. In prescribing

activities for students when writing contracts and in making choices from the contracts, a good way to start is to consider various student learning characteristics. Here is a partial list to consider:

1. Reading ability
2. Desire to learn from reading
3. Ability to understand abstract explanations
4. Need for concrete examples
5. Ability to learn best from using manipulative materials
6. Ability to learn best from various sensory experiences (hearing, seeing, feeling)
7. Ability to learn independently
8. Desire to learn from developing projects
9. Ability to learn best from observation of actual experiences
10. Need for repetition and drill
11. Need for constant tutoring from others
12. Ability to learn through self-directed materials
13. Need for teacher direction of activities
14. Need for interaction with others
15. Ability to develop learning experiences independently

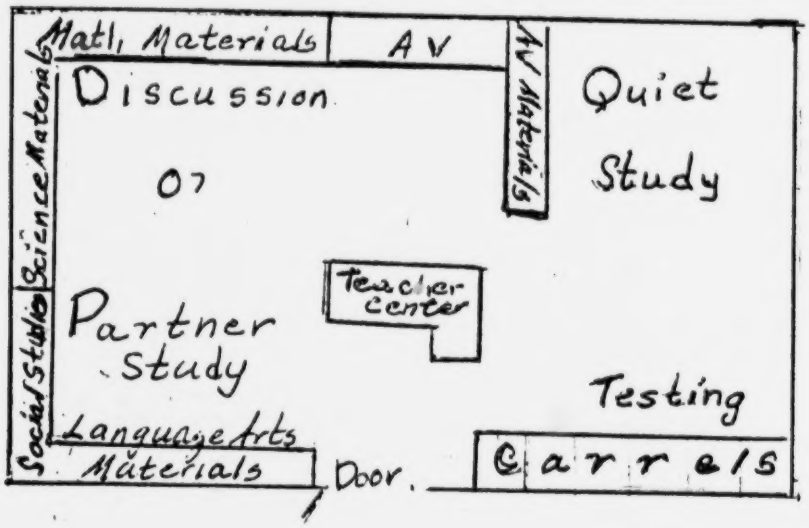
One good approach in helping a student select activities is to discuss with him or her possible activities which provide for these learning characteristics. We have provided a list which you might discuss with him or her. The student can then check these activities he prefers to do. This list will then be a guide for your planning for that student.

Would you please send a list of the objectives you have developed and one copy each of two student contracts you have developed. We would like to critique this material to help you make them more effective.

Organization for individualization

Organizing rooms into study areas

When a variety of activities are going on in a classroom, it is sometimes difficult for students to adjust to this form of organization. Many teachers have found it helps to partitition the classroom in areas for different types of study. The classroom may look like this.



Notice that the areas for quiet activities such as quiet study and testing are across the room from the discussion area, the AV area, the teacher area and the materials centers. This gives the student who needs quiet for concentration a chance to have a relatively quiet study area. The areas can be separated by book cases or tables. Some secondary teachers have been able to arrange their rooms to include a separate testing room monitored by an adult aide.

Organizing time for individualized study

At this time you probably have a limited number of contracts for your students to use. As you write more contracts you will be able to plan a more flexible schedule for your individualized program. The ideal situation is when a student can work on the appropriate objectives for him at a time when he feels the need. Dividing the day into set "periods" for different subject matter can be eliminated when you have been able to provide contracts in all subjects. If you have contracts for only one subject you can still allow students to work on them any time during the day. Remember, flexibility is an asset to individualization. It enables you to meet the needs of each individual student more effectively.

Allow for independent testing

Providing for testing of objective achievement is also a necessary step in individualization. The first provision is a quiet area in which students can take tests. It should be away from the discussion areas but within view of the teacher's desk or be monitored by a teacher's aide. The second provision is for easily accessible copies of each objective test. There need to be only a few copies made of each test so they are non-consumable. You might want to put them in plastic sleeves. If they are kept at the teacher's desk or under supervision of an aide they can easily be accounted for when they are returned. One system is for a student who is ready for a test to put a slip of paper with his name and test number he needs in a box. In this way, the materials needed for testing can be ready the next day. Another system is to hand out the requested tests and materials every hour or immediately when requested.

You have been given additional information about four ways to increase individualization in your classroom. They are: individualizing objective choice, individualizing activity choice, organization for individualization and allowing for independent testing. All of these activities will take planning before they can be implemented. It may be helpful to you to set goals for implementation within the next few months. The chart below may help us to see at what stages it is possible for teachers to implement each of these activities. Will you use this chart for the next month and a half and send it to us by May 8th? In addition to the chart you might want to include some comments and suggestions for revision of the suggested activities.

ARRANGEMENTS FOR INDIVIDUALIZATION

This chart will help you keep track of your progress in developing procedures for individualizing on the basis of the activities suggested in your packet of materials. There are spaces for checking for four weeks. Would you record the first group of activities by specifying the number of students who benefited. The last activity in that section requires the number of actual contracts written. The second group of activities can be recorded by checking the day on which you introduced the new arrangement.

ACTIVITIES	Week of March 20					Week of March 27					Week of April 10					Week of April 17				
	M	T	W	TH	F	M	T	W	TH	F	M	T	W	TH	F	M	T	W	TH	F
Discussed characteristics and activities with students. (Number)																				
Assigned contracts by pre-test information. (Number)																				
Gave pre-test to students not in present contracts. (Number)																				
Wrote new contracts for these students. (Number)																				
Number of students provided with new contracts.																				
Check the day on which these arrangements have been completed.																				
Organized classrooms into study areas.																				
Organized time into long blocks for individualized study.																				
Arranged for individualized testing procedures.																				

Activities Check-list

1. Reading: texts _____ programmed materials _____
   trade books _____ resource books _____
   newspapers _____ magazines _____

2. Abstract explanations: texts _____ filmstrip _____
   audio-tape _____ lecture _____

3. Concrete examples: Cuisenaire rods/blocks/abacus/other _____
   models _____ samples _____
   displays _____ other _____

4. Sensory experiences: audio-tapes _____ filmstrips _____
   films _____ touch packets _____
   textured models _____

5. Independent learning: select own materials _____
   develop own process _____
   develop own project _____

6. Projects: to summarize ideas _____
   to illustrate classifications _____
   to obtain information _____

7. Observation of experiences: field trip _____
   lab observation _____
   demonstration by teacher _____

8. Repetition and drill: language master _____
   flash cards _____
   audio-tape repetitive drill _____

9. Tutoring from others: many teacher sessions _____
   help from a partner _____

10. Self-directed materials: programmed materials _____
    list of steps for a procedure _____
    audio-tape explanation _____

11. Interaction with others: partner work _____
    group discussions _____

Record Keeping in Individualized Instruction

Accurate and consistent record keeping is an absolute "must" for a successful individualized classroom. Teachers soon find that a variety of records are helpful. The purposes most often found for record keeping are:

(1) Day-to-day tracking of activity participation
(2) Permanent record of objective achieved
(3) Student record of progress
(4) Reporting to parents

In each of these records the emphasis is on individual achievement rather than a group comparison. Students learn soon to be concerned mainly about their own progress and how they can help other students. They make progress when records are designed to reinforce positively for individual progress. You might say, then, that record keeping in individualized instruction should be developed to meet three major goals: (1) to help the teacher keep track of each student's progress and regularly diagnosis his needs; (2) to provide each student with a record of his progress and achievement; (3) to provide reinforcement to each student for achievement which will add to a feeling of self-confidence and interest in learning.

The following records have been used successfully by several teachers in individualized classrooms.

Activity Monitoring Chart (Example 1): The purpose of this type of record is to help the teacher determine which students are working on which specific activities. This serves as a guide for needed tutoring and other activities which need teacher help. It also serves to direct a student to others with whom he may want to work.

On the Activities Organization Chart (Example 2), a student tutor list has proven to be very helpful in reducing an overdependence on one or two students for tutoring. Any student may put his name on the list or take it off if he feels he is being over-burdened. Students should also be encouraged to help one another whenever the occasion arises. Student interaction and exchange of ideas is much to be desired and should be encouraged in the classroom.

Permanent Record: Example 3, Record of Objectives Achievement, is suggested because it has been very popular and successful. Recording the date the student begins the objective helps the teacher monitor the student's progress. If a student has been working longer on an objective than is necessary, the teacher should immediately start working with the student individually to determine if the student is working on an objective for which he is inadequately prepared or if the activities are not appropriate for him. When the objective is completed, the date can be circled as shown on this example or the square on which it is marked can be colored in. You will note that not only is the objective number recorded but a few words are included to cue the teacher to the general expectations of the objectives. Some teachers have felt this was helpful to them.

Student Record of Progress (Example 4) helps the student to assume responsibility for his own progress if he keeps a record of his progress. This can be in the form of a graph to indicate progress or a simple table as illustrated in Example 4. As in the teacher records, it is helpful to record the date the objective is begun. The teacher can use the record when conferring with the student on his progress. Some students will need this conference very frequently, such as every day; others will continue to make progress with a minimal checking of once a week with the teacher. Some students will need a very frequent check, several times a day. The second student record example can be used for this purpose.

A very important aspect of student records is the positive reinforcement the teacher can give when in the counseling session. Even a small amount of progress is a big step for some students and should be rewarded with sincere priase. Each student's progress should be judged according to his ability and past progress and reinforcement be administered accordingly. Example 5 illustrates a record kept by a student who needs monitoring during the day.

Report to Parents: The report to parents (example 6) continues the concept that each student's progress should be recorded on an individual basis rather than a group norm. The comments section helps the parents and student understand what is expected of the student in the calssroom. Some teachers prefer to leave out negative comments but others have found the list useful in pointing out behaviors that need to be corrected.

We hope these suggestions for record keeping and using reinforcement techniques have been helpful to you. We would like to have you give us some indication of your intent to use the suggestions and a few comments or questions which would give us the opportunity to help you further. The following guide may help you in this response.

1. Which record(s) do you intend to try?

2. Do you have questions or suggestions for improvement for any of these records?

Activity Organization:

Permanent Record:

Student Record:

Report to Parents:

May we share your suggestions with others? Yes No

3. Which of the reinforcement techniques do you intend to try?

   Reinforcement in curriculum counseling session ____
   Planned reinforcement for specific behavior change ____

4. What problems do you see in using these techniques?

Would you please return this information by April 15? If you have not sent us a learning unit to critique, will you please include one in the mailing?

SAN JOSÉ STATE COLLEGE
125 South Seventh Street, San José, California 95114 (408) 294-6414

SCHOOL OF EDUCATION
Department of Elementary Education

Enclosed is the second packet of information we promised to send to you. We hope it will be helpful to you in organizing your classroom. On page 3 are questions we would like for you to answer and return to us in the enclosed envelope.

Thank you for your cooperation and good luck on your individualizing.

Sincerely,

Warren Kallenbach

Dr. Warren Kallenbach

Dr. Helen D. Dell

Dr. Helen D. Dell

ENCOURAGING STUDENT INDEPENDENCE

In March you received materials from us describing a way you could provide a contract that is appropriate for each student. We also suggested student learning characteristics and activities which would provide for these characteristics. We hope you have found these suggestions helpful when you wrote your contracts. If you have provided a variety of activities you are helping each student learn in the way that is best for him.

The enclosed contract is one that is being used by some teachers. It is one easy way to provide for a variety of materials. You will notice that the first activity in this math contract is one which reviews the student on concepts which the student needs to start working on this objective. The next activity is one that introduces the new concept by using manipulative materials. There is quite a bit of research to indicate this is the most effective way to introduce new concepts in all subjects. The other activities provide for several different modes of learning. You and the student can individualize a contract like this by checking the choice of activities which provide the mode of learning which is best for him. You can use the student learning characteristics list and activity list we sent to you last month to help you. Contracts in other formats can also be individualized for each student by checking the needed activities or crossing out those that are not needed. The important thing is to include enough different kinds of activities to provide for many needs. It is also an advantage as you sequence the activities as we suggested here.

We also suggested that students work very effectively if given freedom to choose the time when they will work on their individualized work. In many classes where three or more subjects are individualized each student is made responsible for his own work schedule. He is expected to keep a balanced program for his studies. Of course, there are always some students who need help in doing this. One teacher checks her record every night to see which students are neglecting one or another of the subjects. Those students are then requested to complete a certain number of objectives in the neglected subject before continuing with the other subjects. In this way she gives the students the chance to develop responsibility for their own learning but also guides those who are not ready for those responsibilities. Another technique used by teachers is to ask some students to make a daily work schedule which they check together once a day or sometimes several times a day. At that time the teacher gives the student a great deal of verbal reinforcement or they may agree on a token reinforcement or that the student can do a "fun" activity if he is meeting his schedule.

All of these techniques develop increased student responsibility. You will find that students not only can assume more responsibility for their own behaviors but that they also learn more of the necessary skills of independent decision making when the classroom environment is one in which he can take care of many of his own needs. Students can take complete responsibility for these tasks:

1. Getting and returning his learning materials;
2. Keeping the materials and work space in good order;
3. Using and monitoring audio-visual equipment;
4. Organizing discussion groups independently of teacher direction to clarify concepts;
5. Tutoring each other;
6. Taking the initiative to ask for help from adults;
7. Making the classroom a desirable learning environment for all; and
8. Finding solutions to interpersonal conflicts independently of teacher direction.

They can learn to take the following responsibilities through your encouragement and guidance:

1. Making choices of objectives;
2. Making choices of activities;
3. Seeking additional work when suggested activities do not help in achieving objectives;
4. Developing a work schedule for guiding their study time;
5. Meeting the goals of the work-study schedule;
6. Exhibiting for each other good models of learning and social behaviors; and
7. Participating in developing a strategy for modifying their own behaviors.

Some of you sent contracts to us for critiquing. We appreciated that very much. We would still like to receive them so send at least one if you have time.

Have you been keeping a record of your accomplishments on the chart we sent to you in March? We hope you will send that to us during the first week in May. An envelope is enclosed to return the record to us. Also if you have any questions or have thought of a new way of organizing your room or time we would like to hear about it. We would like to share your information with other teachers from the workshop.

IMPROPER FRACTIONS

Name _____
Date Started _____
Date Finished _____

Objective 2269: Write a fraction for a given picture that shows a fraction greater than 1.

Example: Write a fraction for the shaded part of these pictures.

Texts	Worksheets	Games	Manipulative Materials	A-V	Self-check.
1.			1. T Flannel board __		
2.		2. Fraction Game __	2. Geo-board Follow directions on card #9.		
3. HM: Study the top of p. 296. __					
4. HM: Do 1-12, p. 296. __ Check your work.					
		5. Auto Race __			With a partner, at the chalkboard, draw pictures to show the following improper fractions: $\frac{9}{7}$ $\frac{5}{3}$ $\frac{8}{5}$ $\frac{6}{4}$ ___
6. AD: Study the top of p. 176.	6. #1 __				

SAN JOSÉ STATE COLLEGE
125 South Seventh Street, San José, California 95114 (408) 294-6414

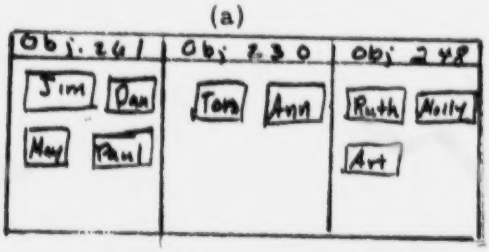
SCHOOL OF EDUCATION
Department of Elementary Education

May 25, 1972

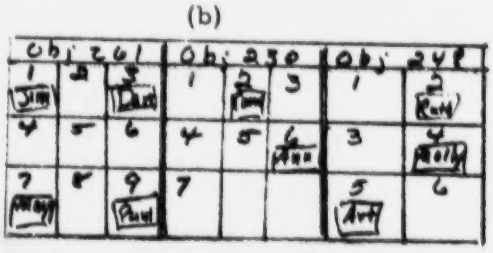
In our communication with you we have tried to emphasize the correlation of two major concepts in individualization: 1) meeting the individual needs of each student through behavioral objectives and activities which provide for individual student learning characteristics; and 2) classroom organization which encourages independent behaviors and provides for individual attention for learning needs.

In the last mailing you received suggestions for record keeping which will help you keep track of each student's progress for purposes of daily monitoring (tracking student progress) and a permanent record of each student's total achievement of objectives. The tracking records could be put on the bulletin board and allow for tracking by objectives (a) or it could provide for tracking by activity (b), like these below. This tracking system uses pockets of construction paper and strips of index cards labeled with the student's name.

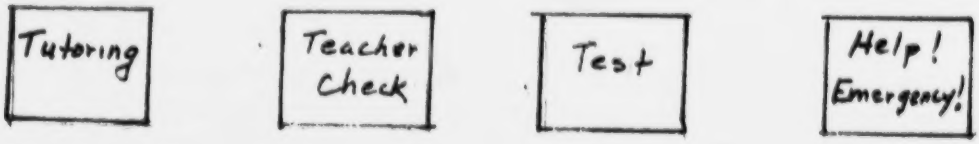
(a)



(b)



Individual tutoring and other needs can also be provided for by the use of library pockets like this.



The teacher can pull the slips out and go around the room helping those who have indicated the need. The tutoring pocket indicates the need for tutoring because the instructional materials are unclear to the student or he needs more help than the materials give him. Teacher checks are often written into the contracts at places where the teacher feels he needed an assessment of the student's understanding of the concept. Whenever the student comes to this Tv on a contract he puts his name in the pocket. The test pocket indicates to the teacher that the student is ready for a test. She may then give him a quick verbal test before giving him the written test or give him the test to take immediately. The "Help Emergency" means a student needs immediate help, therefore, the teacher pulls these names out first. While the student is waiting for attention he can take out other work to do.

This will be the last informational communication you will receive from us. We hope this has been useful to you in furthering the individualized procedures in your classroom. You will be contacted soon by the observers who will once again ask that you let them observe in your classroom. This will be the basis for our analysis of the effectiveness of this informational procedure. They will also bring copies of the Student Attitude Inventory and Student Independence Questionnaire which we would like to have your students complete.

Thank you for cooperating with us in the project. Good luck on your continuing in individualization.

Sincerely,

Warren K. Kallenbach

Dr. Warren K. Kallenbach

Dr. Helen D. Dell

Dr. Helen D. Dell

APPENDIX B

THE TEACHER OBSERVATION SCALE

CALIFORNIA TEACHER DEVELOPMENT PROJECT
CTDP TEACHER OBSERVATION SCALE (TOS)

PURPOSE

The CTDP Observation System was developed for the purpose of determining the extent to which teachers use individualized instruction methods in their classrooms. It was not intended to be a means of determining the effectiveness of teaching strategies. Use of this observation system to evaluate the effectiveness of teaching is entirely inappropriate.

DEFINITION OF INDIVIDUALIZED INSTRUCTION

By individualized instruction is meant the use of one or more of the following methods:

1) Permitting the individual learner to utilize instructional materials at his own rate: pacing level.

2) Permitting the individual learner to utilize differing instructional materials to achieve a given objective: materials level.

3) Permitting the individual learner to work toward objectives formulated to meet his needs: objectives level.

WORKING OR OPERATIONAL DEFINITIONS

Group - A group is comprised of two or more learners.

Pacing Level - When six or more individuals are observed to be working at different rates, instruction is at the pacing level of individualization.

Materials Level - When six or more individuals are observed to be working with different instructional materials to achieve the same objective, instruction is at the materials level of individualization.

Objectives Level - When six or more individuals are observed to be working in different content areas or with different concepts with a content area, instruction is at the objectives level of individualization.

SAMPLING OF INSTRUCTIONAL METHODS

Every thirty (30) seconds, the observer in the classroom records each level of individualization which he sees taking place: pacing, materials, and objectives. If no method of individualization was used by the teacher, this is also recorded.

ADDITIONAL OBSERVED BEHAVIOR

Group Size

The observer also records the size of the group with which the teacher is working at the end of each thirty (30) second interval.

Content

Finally, the observer records the content with which the teacher is working at the end of each thirty (30) second interval.

TEACHER OBSERVATION SCALE

Levels 1 - 9

1 = No Individualization
2 = Pacing
3 = Materials
4 = Objectives
5 = 2 & 3
6 = Confusion (unable to judge)
7 = 3 & 4
8 = 2 & 3
9 = 2 & 3 & 4

Area 1 - 9

1 = Reading, Language Arts, Spelling
2 = Mathematics
3 = Science, including biology and chemistry
4 = Social Studies, including history and geography
5 = Other
6 = Confusion
7 = Reading, Mathematics and Science
8 = Reading and Mathematics
9 = Reading and Social Studies

Number 1 - 7

1 = Teacher working with 1 student
2 = " " " 2 to 3 students
3 = " " " 4 to 6 "
4 = " " " 7 to 10 "
5 = " " " 11 or more students
6 = Confusion
7 = Teacher working at desk

APPENDIX C

THE TEACHER ATTITUDE INVENTORY

California Teacher Development Project

TEACHER ATTITUDE INVENTORY

Directions: Circle the response in the right hand column that best reflects your attitude on each question.

Use: SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree

1.	The teacher can make better use of class time if all students work together.	SA A D SD
2.	A teacher can always find one best textbook for the students in the class.	SA A D SD
3.	All students should start a course at the same time.	SA A D SD
4.	In order that they can spend more time in areas where they need it, students should not be bound by fixed class schedules.	SA A D SD
5.	Even though the content is the same, one set of instructional materials may interest a student more than another set.	SA A D SD
6.	In any course, all students should have the same content.	SA A D SD
7.	All students in the class should listen to the teacher's lectures.	SA A D SD
8.	There should be more and better learning taking place when all of the students in a class use the same text.	SA A D SD
9.	The teacher should set the primary objectives for the class.	SA A D SD
10.	Students should always proceed at their own pace.	SA A D SD
11.	Students should have a variety of instructional materials to select from.	SA A D SD
12.	Students should study that content which best meets his own needs and interests.	SA A D SD
13.	A student should take a test when he is ready for it.	SA A D SD
14.	If a good selection of testbooks are available to the students, it is not necessary to provide them with instructional materials based on other media.	SA A D SD

15. Each student should have his own objectives toward which he can work. SA A D SD

16. Even when working hard, some students need more time than others to complete their work. SA A D SD

17. An important part of individualizing materials is individualizing tests. SA A D SD

18. To determine quality of performance, each student's performance should be compared to the performances of his fellow students. SA A D SD

19. A student should not be expected to work with a class where all of the students are working at their own rates. SA A D SD

20. All students in a class should take the same tests so that the teacher can compare the grades. SA A D SD

21. Because competition promotes achievement, all students should be working toward the same objectives. SA A D SD

22. Students will tend to become lazy if they are allowed to work at their own pace. SA A D SD

23. The individualization of materials should include selecting the media which best suits the student. SA A D SD

24. The teacher should establish minimum standards for the whole class. SA A D SD

25. Because of their college training, teachers know what are the best rates of study for the students. SA A D SD

26. Materials should be determined by the individual's needs. SA A D SD

27. Even in individualized instruction, all of the students in a given class should be studying the content. SA A D SD

28. It is not necessary that all of the students in a class be the same age. SA A D SD

29. All students should start and end a unit using the same materials. SA A D SD

30. The teacher should be sure that all students receive the basics in a subject. SA A D SD

APPENDIX D

THE STUDENT ATTITUDE INVENTORY

Student's Name _____ School _____

Sex: Boy _____ Girl _____ (check one) Teacher's name _____

Grade Level _____

INDIVIDUALIZING INSTRUCTION PROJECT

SAN JOSE STATE COLLEGE SCHOOL OF EDUCATION

STUDENT ATTITUDE INVENTORY

Directions: Read each question , then circle the answer (YES or NO) which best shows how you feel.

1.	I generally do an acceptable job of studying.	YES	NO
2.	Teachers make an effort to make new students feel welcome at school.	YES	NO
3.	Teachers are concerned about whether or not a student has friends.	YES	NO
4.	Students are given enough freedom in selecting their school subjects.	YES	NO
5.	Students in my school make a special effort to make new students feel welcome.	YES	NO
6.	Teachers are aware of the opinions of the students.	YES	NO
7.	I feel that I have a teacher who is definitely interested in me as an individual.	YES	NO
8.	Teachers try to give students a chance to be successful in class.	YES	NO
9.	I feel that my teachers care about what students think about their subjects, their classroom work, and their assignments.	YES	NO
10.	I do as well as my classmates in school.	YES	NO
11.	My grades tend to encourage me in my school work.	YES	NO
12.	The school has the information I want and need to know about colleges or other schools which offer post-high school work.	YES	NO
13.	Teachers have talked with me about the things I do best.	YES	NO
14.	I feel at ease when taliing individually to my teachers.	YES	NO
15.	Teachers try to give students a chance to be successful in class.	YES	NO
16.	When I am in a "rut" at school, I know how to get out of it.	YES	NO
17.	At least one high school teacher has done something important especially for me as an individual.	YES	NO
18.	Teachers show respect and consideration for students under their supervision.	YES	NO

19. I feel free to discuss a personal problem with one of my teachers. YES NO

20. My teachers have made me feel more confident about my ability. YES NO

21. The grading system is an incentive to do my best work. YES NO

22. My teachers understand the problems of students. YES NO

23. Time spent in school is worthwhile. YES NO

24. To be accepted by a group of friends is one of the best things that can happen to a person. YES NO

25. Teachers speak to me outside of class. YES NO

26. I feel that I have become sufficiently involved in school activities. YES NO

27. I can talk about my real feelings about things with one of my teachers. YES NO

28. I find it easy to talk with my teachers about my problems. YES NO

29. I usually feel comfortable and at ease when I am in my classes. YES NO

30. I seldom think about quitting school. YES NO

31. It is easy for me to get along with teachers and other students. YES NO

32. Teachers let me know when I have done a good job. YES NO

33. I have several close friends at school who would stick by me even if I were in serious trouble. YES NO

34. My education is helping me to set and achieve my future goals. YES NO

35. I think my teachers enjoy teaching. YES NO

36. My friends think that getting good grades in school is important. YES NO

37. Students respect teachers in my school. YES NO

38. My teachers try to become personally acquainted with all the students in their classes. YES NO

39. I would be going to school whether or not I had to. YES NO

40. I have a friend whom I can trust to keep my secrets. YES NO

41. My teachers miss me when I am absent from class. YES NO

42. My school subjects interest me. YES NO

43. Making friends at school is easy. YES NO

44. I hate to miss school. YES NO

45. My teachers think that I will be successful in my adult life. YES NO

46. My teachers are willing to spend extra time and effort to help me with my school work before or after regular school hours. YES NO

47. I look forward to seeing my friends at school. YES NO

48. I like my subjects. YES NO

49. I enjoy coming to school. YES NO

50. I feel that there is a teacher or somebody that I can really talk with in school. YES NO

51. I want to keep my grades about the same as those of the rest of the members of my group. YES NO

52. My teachers help me with any problems or questions I have. YES NO

Return, when completed, to: Dr. Warren Kallenbach, School of Education, San Jose State College, San Jose, California 95114

APPENDIX E

THE INDEPENDENT WORK HABITS INVENTORY
(Student Questionnaire)

STUDENT QUESTIONNAIRE

Circle the answer that tells what you do in each of these cases:

What do you do when you:

1.	Want books or other materials to work with?	The teacher passes them out.	I go to the shelves and get them.
2.	Want to know what to do next and the teacher is busy?	I take out a Contract and decide which activity to work on.	I wait until the teacher isn't busy and ask him (her).
3.	Want to know what you will be doing in the afternoon?	I ask the teacher.	I plan my work for the afternoon.
4.	Are finished with a book or material?	I wait until the teacher calls for it to be passed in.	I return it to the shelf.
5.	Come into the room in the morning, at noon, or after recess?	I start working.	I sit down and wait until the teacher starts class.
6.	Need help on your work?	I find someone to help me.	I raise my hand or wait for the teacher.
7.	See that materials are left out?	I leave them until the teacher says to put them away.	I put them away.
8.	Need to discuss a question with others?	I ask several other students to have a discussion with me.	I ask the teacher if we can discuss the question.
9.	See that someone else needs help?	I offer to help him.	I wait to see if the teacher will help him.
10.	Want to use the audio-tape recorder?	I ask the teacher if I can use it.	I use it.

11.	Want to write a story about something that happened to you?	I ask the teacher if I can.	I write it.
12.	Work with another student?	I ask the teacher if I can.	I ask the other student if he will work with me.
13.	Want to work on a social studies project?	I wait until social studies period.	I work on it.
14.	Think you are ready to take the test on math problems you have studied?	I take the test.	I take the test when the teacher passes it out.
15.	Would rather see a filmstrip which is in the classroom than to read about the topic?	I look at the filmstrip.	I ask the teacher if I can look at it.
16.	Don't know when you are supposed to have a task finished?	I ask the teacher.	I decide when I want to finish it.

How do you decide:

17.	Where to sit when you study?	I sit in my desk or ask the teacher if I can move.	I sit in the area where the materials are or where I want to sit.
18.	If you need to continue working on a lesson?	I check to see if I've learned enough to achieve the objective.	I ask the teacher.
19.	If you're ready to take a test?	I ask the teacher.	I review the activities to see if I can achieve the objectives.
20.	What objectives to work on the first thing in the morning?	I ask the teacher.	I look to see what I need the most work on.
21.	If you can make a project that occurs to you when you are reading?	I look for the materials I need to start it.	I ask the teacher if I can.

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